



I claim:

1. A burner assembly for combining oxygen and fuel to produce a flame, the burner assembly comprising:
a burner block formed to include a flame chamber having an inlet opening and an outlet opening;
bypass means for conducting oxygen outside of the flame chamber to the outlet opening of the flame chamber;
an oxygen-supply housing including chamber means for receiving a supply of oxygen and a base wall adjacent to the burner block, the base wall being formed to include first aperture means for discharging oxygen from the chamber means into the flame chamber and second aperture means for discharging oxygen from the chamber means into the bypass means said first and second aperture means metering the supply of oxygen, passing there through, and
means for discharging fuel into the flame chamber, formed in the burner block, the discharging means including a nozzle extending through the chamber means and the first aperture means formed in the base wall and supported by the base wall to discharge fuel into the flame chamber.

13. A burner assembly for combining oxygen and fuel to produce a flame, the burner assembly comprising:
a burner block formed to include a flame chamber having an inlet opening and an outlet opening;
bypass means for conducting oxygen outside of the flame chamber to the outlet opening of the flame chamber;
an oxygen-supply housing including chamber means for receiving a supply of oxygen and a base wall adjacent to the burner block, the base wall being formed to include first aperture means for discharging oxygen from the chamber means into the flame chamber and second aperture means for discharging oxygen from the chamber means into the bypass means,
wherein the discharging means further includes a removable collar engaging the nozzle and threadedly engaging the oxygen-supply housing, and

[The burner assembly of claim 12,] wherein the oxygen-supply housing includes an annular lip defining a cylindrical nozzle aperture receiving the nozzle and the removable collar includes an annular side wall surrounding and engaging the annular lip.

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16. A burner assembly for combining oxygen and fuel to produce a flame, the burner assembly comprising
a burner block formed to include a flame chamber having an inlet opening and an outlet opening,
bypass means for conducting oxygen outside of the flame chamber to the outlet opening of the flame chamber,
means for discharging fuel into the flame chamber formed in the burner block, [and]
an oxygen-supply housing including chamber means for receiving a supply of oxygen and a base wall adjacent to the burner block, the base wall being formed to include first aperture means for discharging oxygen from the chamber means into the flame chamber and second aperture means for discharging oxygen from the chamber means into the bypass means, said first and second aperture means metering the supply of oxygen passing therethrough, the oxygen-supply housing including a hollow shell appended to the base wall to define the chamber means therebetween, wherein the hollow shell has a pyramidal shape and includes at least one triangular side wall appended to the base wall and formed to include an oxygen-admission port, and
wherein the means for discharging fuel extends through the base wall

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21. A burner assembly for combining oxygen and fuel to produce a flame, the burner assembly comprising
a burner block formed to include a flame chamber having an inlet opening and an outlet opening,
bypass means for conducting oxygen outside of the flame chamber to the outlet opening of the flame chamber,
means for discharging fuel into the flame chamber formed in the burner block, and
an oxygen-supply housing including chamber means for receiving a supply of oxygen and a base wall adjacent to the burner block, the base wall being formed to include first aperture means for discharging oxygen from the chamber means into the flame chamber and second aperture means for discharging oxygen from the chamber means into the bypass means, said first and second aperture means metering the supply of oxygen passing therethrough,
the oxygen-supply housing including a hollow shell appended to the base wall to define the chamber means therebetween, wherein the hollow shell includes a tip and a side wall extending between the tip and the base wall, the tip is formed to include an aperture, and the discharging means includes a nozzle supported by the base wall and extending through
the aperture formed in the tip and the first aperture means formed in the base wall and terminating in the inlet opening of the flame chamber.

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29. A burner assembly for combining oxygen and fuel to produce a flame, the burner assembly comprising
a burner block formed to include a flame chamber having an inlet opening and an outlet opening,
bypass means for conducting oxygen outside of the flame chamber to the outlet opening of the flame chamber;
means for discharging fuel into the flame chamber formed in the burner block, and
an oxygen-supply housing including chamber means for receiving a supply of oxygen and a base wall adjacent to the burner block, the base wall being formed to include first aperture means for discharging oxygen from the chamber means into the flame chamber and second aperture means for discharging oxygen from the chamber means into the bypass means, said first and second aperture means metering the supply of oxygen passing there through, and with the oxygen-
supply housing further including a hollow shell appended to the base wall to define the chamber means

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36. A burner assembly for combining oxygen and fuel to produce a flame, the burner assembly comprising
a burner block formed to include a flame chamber having an inlet opening and an outlet opening,
bypass means for conducting oxygen outside of the flame chamber to the outlet opening of the flame chamber,
means for discharging fuel into the flame chamber formed in the burner block,
an oxygen-supply housing including chamber means for receiving a supply of oxygen and a base wall adjacent to the burner block, the base wall being formed to include first aperture means for discharging oxygen from the chamber means into the flame chamber and second aperture means for discharging oxygen from the chamber means into the bypass means, said first and second aperture means metering the supply of oxygen passing there through, the burner block
being formed to include at least one oxygen-admission port lying adjacent to the base wall and communicating with the second aperture means and the bypass means being coupled to the oxygen-admission port and arranged to pass through the burner block to conduct oxygen from the chamber means through the burner block to the outlet opening of the flame chamber, the second aperture means including a plurality of wall apertures formed in the base wall, the burner block being formed to include an oxygen-admission port communicating with each wall aperture, and frame means for supporting the burner block, the base wall being mounted on the frame means, the burner block being formed to include an annular channel around the inlet opening of the flame chamber, the frame means including means for covering the annular channel to define an annular oxygen-conducting passageway therein and means for communicating oxygen discharged from the chamber means through the wall apertures to the annular oxygen-conducting passageway for delivery to the outlet opening of the flame chamber through the bypass means, and
wherein the means for discharging fuel is supported by the base wall.

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37. A burner assembly for combining oxygen and fuel to produce a flame, the burner assembly comprising
a burner block formed to include a flame chamber having an inlet opening and an outlet opening,
bypass means for conducting oxygen outside of the flame chamber to the outlet opening of the flame chamber,
means for discharging fuel into the flame chamber formed in the burner block, and
an oxygen-supply housing including chamber means for receiving a supply of oxygen and a base wall adjacent to the burner block, the base wall being formed to include first aperture means for discharging oxygen from the chamber means into the flame chamber and second aperture means for discharging oxygen from the chamber means into the bypass means said first and second aperture means metering the Supply of oxygen passing there through, the discharging

means including a fuel discharge nozzle and means for fixing the fuel discharge nozzle in the inlet opening, the fixing means being positioned to lie between the base wall and the burner block, the fixing means being formed to include third aperture means for conducting oxygen discharged through the first aperture means into the flame chamber, the third aperture means defining a first-stage oxygen port having a first effective cross-sectional area and communicating oxygen from the chamber means into the flame chamber, the second aperture means defining a second-stage oxygen port having a second effective cross-sectional area less than the first effective cross-sectional area and communicating oxygen from the chamber means to the outlet opening of the flame chamber through the bypass means.

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